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(54) **Wavelength division multiplex optical transmission system using optical amplification.**

(57) In a wavelength division optical transmission system incorporating optical amplifiers, an identifying pilot tone is modulated on to each multiplexed wavelength. Each system amplifier determines from the pilot tones the total number of wavelengths being transmitted and thereby provides a corresponding adjustment of the amplifier gain. This prevents overamplification when one or more wavelengths is missing from the multiplexed signal e.g. as the result of a transmitter fault.

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FIG.1

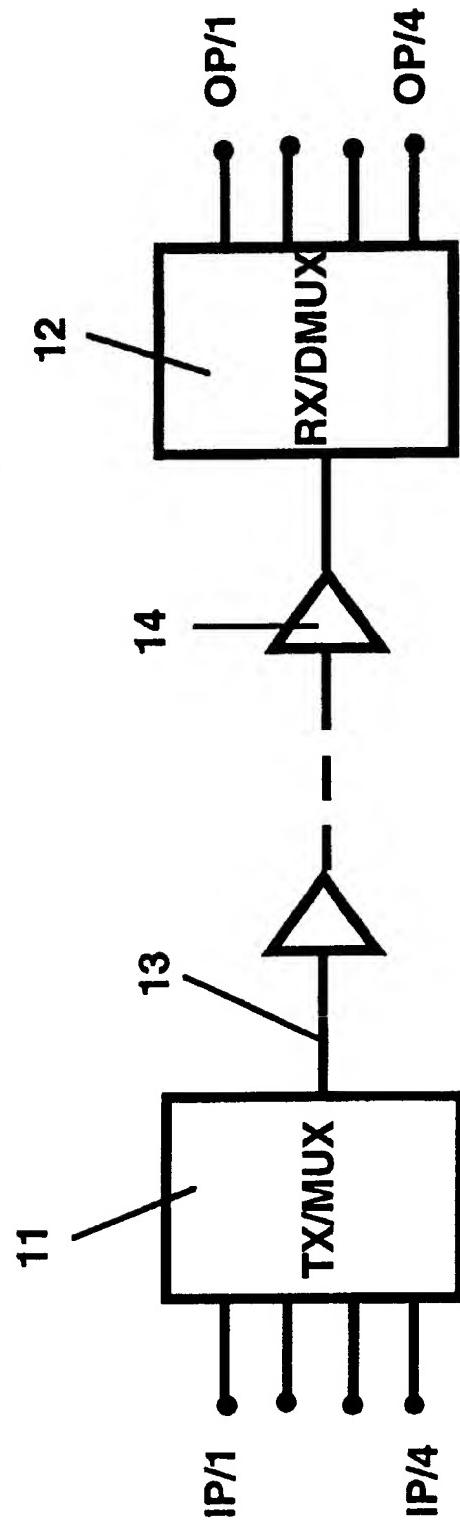


FIG.2

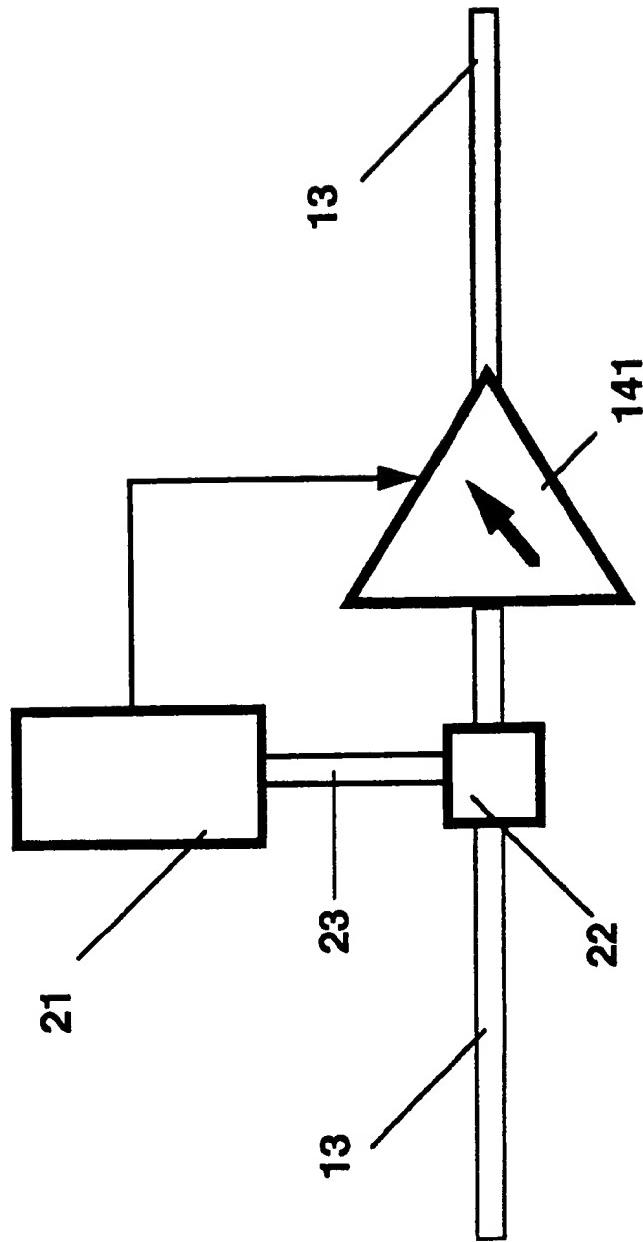
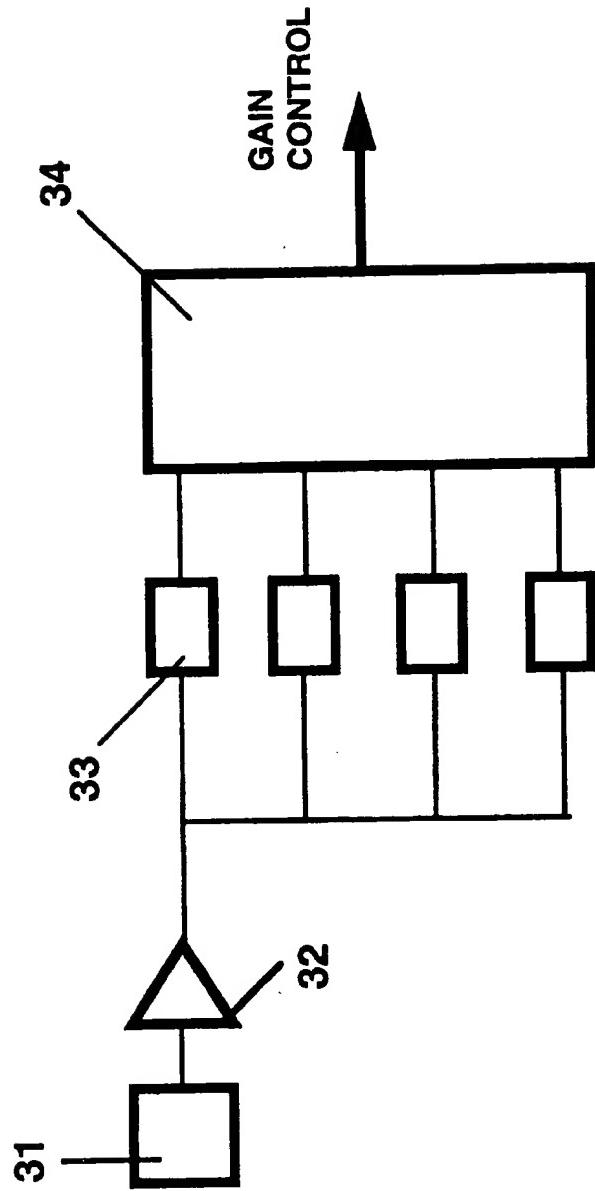


FIG.3

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EUROPEAN SEARCH REPORT

Application Number
EP 94 30 5617

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.)						
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim							
Y A	EP-A-0 467 396 (CANON KABUSHIKI KAISHA) * abstract; figure 5 * * column 3, line 20 - line 47 * ---	1,2,5 4	HO4B10/17						
Y A	GB-A-2 257 320 (FUJITSU) * page 2, line 6 - line 16; figures 2,3 * * page 6, line 11 - line 34 * ---	1,2,5 4							
A	EP-A-0 543 570 (ATT) * page 2, line 36 - line 46 * ---	1,4,5							
A	EP-A-0 242 802 (NEC) * column 3, line 4 - line 49; figure 1 * ---	1,4,5							
A	IEEE PHOTONICS TECHNOLOGY LETTERS, vol.5, no.2, February 1993, NEW YORK US pages 248 - 251 H.TOBA ET AL 'A 100-Channel Optical FDM Six-Stage In-Line Amplifier System Employing Tunable Gain Equalizers' * page 248, right column, last paragraph - page 249, left column, paragraph 1; figure 1 * -----	1,4,5							
			TECHNICAL FIELDS SEARCHED (Int.Cl.)						
			HO4B HO4J						
<p>The present search report has been drawn up for all claims</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Place of search</td> <td style="width: 33%;">Date of completion of the search</td> <td style="width: 34%;">Examiner</td> </tr> <tr> <td>THE HAGUE</td> <td>10 October 1994</td> <td>Goudelis, M</td> </tr> </table>				Place of search	Date of completion of the search	Examiner	THE HAGUE	10 October 1994	Goudelis, M
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THE HAGUE	10 October 1994	Goudelis, M							
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons A : member of the same patent family, corresponding document							
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